Saint Arthur

of the Calipers

KINANTHREPORT
XVII:1 February 2004

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Newsletter of the International Society for the Advancement of Kinanthropometry

▶ PRESIDENT'S CORNER

Dear Colleagues

In my last President's Corner, I was privileged to announce the awarding of Criterion Anthropometrist status to Bill ROSS. Elsewhere in this edition of **Kinanthreport**, I announce the recognition of another Criterion Anthropometrist – Arthur STEWART. My sincerest congratulations to Arthur —- the honour is thoroughly deserved.

This month, we hope to see the conclusion of the long-awaited ISAK Accreditation Review, which event will be marked by its final sign-off by ISAK's Council. Following that, the Revised Accreditation Scheme will be sent out to all Level 3 and 4 anthropometrists, (who have the responsibility for administering the scheme), and will be highlighted in our next issue of **Kinanthreport**, which will be the appropriate time for me to comment more fully.

In the latter half of last year, I was lucky enough to visit both Europe and North America. During that trip, I conducted re-accreditation examinations in Australia, Germany and Portugal as well as in one of the recognised homes of anthropometry, San Diego State University, workplace of our Past President, Lindsay CARTER. Prior to going to Portugal, to see Council Member Isabel FRAGOSO, I visited Norway to see Dr Pétur Júlíusson who works at the Barn Klinic (Children's Hospital) in Bergen. Dr Júlíusson is embarking on a major child growth study, (targeting 12,000 Bergen children), which will, to a large extent, duplicate similar large-scale studies done in Bergen in the 1950s and 1970s. The interesting feature of the study, which is why I was there, was the use of anthropometric measures which are in essence the ones we have defined in our ISAK protocols. This pleasing situation had arisen because the conductors of the previous two studies had originally been trained by Jim Tanner

in the UK, with whom, if my memory serves me correctly, Bill ROSS did some of his post-doctoral work. I was then even further impressed on arrival in Lisbon to discover (something that I should have been aware of, but wasn't) that our own ISAK colleagues, Isabel FRAGOSO and Filomena VIEIRA, had conducted an equally-monumental anthropometric study on Lisbon children in 1991 and 2001.

This year, we will be holding our Biennial General Meeting (BGM) in conjunction with the 2004 Pre-Olympic Congress which will be held in Thessalonica, Greece, from 6 to 11 August. I hope to see as many of you there as possible, but recognise that the costs of attending such conferences (and meetings) are significant and, when compounded by distance and unfavourable exchange rates, may well be prohibitive. The BGM also marks the end of their elected term for some Council members. If they choose to stand for re-election (and all are eligible to do so), they still have to be re-elected. There is a preliminary notice in this edition and voting papers will be sent out to you immediately after the close of nominations. So I urge you to exercise your vote for those who stand to ensure that you get the ISAK Council that you want. (In case you're wondering, yes, my term as President expires in August and, yes, I intend to stand for re-election.)

In this President's Corner, I'd like to pay tribute to the dedicated anthropometrists and educators who have worked hard for translations of current anthropometric instruction manuals from English into their own language. If my memory serves me correctly, (and I apologise in advance if it doesn't), the first translation from English was organised by Juan-Carlos MAZZA from Argentina, whose team translated the entire **Anthropometrica** into Spanish in a week. This fabulous feat was then emulated by Sang-Jo KANG and his team in Korea in 2001. More recently, Klaus-Peter HERM has just finished translating the ISAK Manual into German, Francis HOLWAY and Miguel ALBARRÁN are near finishing a translation into Spanish, Paulo GOMES

is working towards a Portuguese translation, Kagawa MASAHARU has just sought permission to do a Japanese translation and Diwakar Lal AMATYA has offered to translate the Manual into Nepalese. These wonderful initiatives involve a great deal of work, but provide invaluable tools with which to provide anthropometric training for non-English speakers. Thank you to all those who have made, or are in the middle of making, such an important contribution.

Lastly, may I wish you all hard work in 2004 and the prosperity and satisfaction that brings.

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11 February 2004

► ARTHUR STEWART, CRITERION ANTHROPOMETRIST

It gives me great pleasure to announce that on 1 September 2003, the International Society for the Advancement of Kinanthropometry (ISAK) recognised Dr Arthur STEWART, University of Aberdeen, as a Criterion Anthropometrist.

Saint Arthur

Criterion Anthropometrist is the highest level of ISAK's four-level international anthropometry accreditation scheme, and is an honour that ISAK does not bestow lightly. It is only awarded to anthropometrists who have many years of experience in taking measurements, have a high level of theoretical knowledge, are involved in the teaching/examining of ISAK workshops or courses, have had involvement in large kinanthropometric measuring projects and have a significant publication record in anthropometry in international peer-reviewed journals. Arthur STEWART becomes only the 11th anthropometrist worldwide and the first in Great Britain to achieve ISAK Criterion status.

On top of his anthropometric achievements, Arthur has been a valued member of ISAK's Accreditation Working Group since 2001 and an ISAK Council member since July 2002. He is Co-Chair of the Scottish Anthropometry Standardisation group (SAS) for the Scottish Institute of Sport and a member of the Aberdeen Centre for Energy Regulation and Obesity (ACERO) research group. In 2002, he organised and ran the UK's first ISAK Level 3 anthropometry course at Aberdeen and followed it up with teaching and examining a Level 2 course, again in Aberdeen, in July, last year.

To date, Arthur has proven himself an excellent academic ambassador for both anthropometry and ISAK. His appointment as a Criterion Anthropometrist is just recognition of his scholarship and effort and reflects great credit not only on him, but also on his institution, the University of Aberdeen. I know he will wear his new mantle with honour and will more than capably meet its attendant responsibilities.

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► KINANTHROPOMETRY 7

The proceedings of the Seventh Scientific Conference of ISAK (Brisbane, 7-12 September 2000) have been published by the Potchefstroom University for CHE.

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Price

$US 18 for non-members of ISAK

$US 15 for ISAK members

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▶ NOTICE OF ISAK BIENNIAL GENERAL MEETING

The ISAK 2004 Biennial General Meeting will be held at Aristotle University, Thessalonica, Greece at 6.15 pm on Monday 9th August, 2004.

Any remits for the meeting should be in the hands of the Secretary-General, ISAK, no later than 1 July, 2004.

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► BETWEEN ROC ANALYSIS AND A HARD PLACE

And by the way, what happened to my post-course profile data?

You have passed the ISAK exam and you've diligently collected your 20 post course profiles. Your ISAK certificate may adorn your office wall, adjacent to parchments for your degree or cycling proficiency test. Your data are consigned to a dusty filing cabinet and you can now focus on new aspects of your work.

Your post-course profile data are a means to an end — reducing your intra-tester error and giving you valuable experience in making measurements. However, rather than see your valuable array of anthropometric information lost, we have used Receiving Operator Characteristic (ROC) analysis to investigate the relationship between skinfolds and body mass index (BMI) in a sample of subjects whose body composition was measured separately.

Use of BMI in predicting overweight and obesity has been a contentious issue in the past. The limitations of a system that uses stature and body mass as its two components are obvious — BMI can be greatly affected by relative lower limb length and frame size, and may reflect both lean tissue and fat equally. Using skinfolds to predict adiposity is perhaps more valid, but do the data support it being more accurate?

The criterion for any individual being proclaimed overweight must surely be a relative abundance of excess fat. Controversially the WHO uses BMI as the discriminator for populations whose adiposity is unknown, and here we thought it would be interesting to compare it with the sum of 8 skinfolds (∑8) at all ISAK sites in predicting the adiposity of a sample whose fatness was estimated. The predictive value of each discriminator can be tested by Receiving Operator Characteristic (ROC) analysis which estimates diagnostic accuracy.

ROC analysis is a method of evaluating the accuracy of a diagnostic test by summarising its potential to discriminate between the presence and absence of a health condition. In this case, it will be used to test the ability of BMI and ∑8 variables to discriminate those who are overweight from those who are not. For this we have selected % fat cut-offs which allow us a prevalence of overweight of about 10% and 20% in this sample of males and females respectively.

	Not overweight	**Overweight**
Test +ve	False +ve	True +ve
Test –ve	True –ve	False –ve

Figure 1. The four fields of test outcomes in ROC analysis.

The four fields for test outcomes are depicted in Figure 1. In a useful predictive test, the true +ve and true –ve would be high and the false +ve and false –ve would be low. ROC analysis establishes a diagnostic threshold for the test which balances false +ve and –ve scores for the sample concerned, then displays as the overlap between sensitivity/specificity by plotting sensitivity vs specificity for the complete range of decision thresholds of test. **Sensitivity** is the probability of a positive test when the condition is present (% true positive rate), while **specificity** is the probability of a negative test when the condition is absent (% true negative rate)

The ROC Plot is the graph of sensitivity against (100 – specificity). Each point on the ROC plot represents a sensitivity/specificity pairing. A test with perfect discrimination, ie no overlap in the two distributions of results, would have a true +ve fraction of 1.0 (perfect sensitivity), and a false positive fraction of 0 (perfect specificity). The area under the ROC curve represents the probability that a randomly selected individual from the positive group will have a larger test value than that of a randomly selected individual for the negative group.

Method

Sample data came from post-course profiles of 587 male and 180 female subjects, including controls, athletes and obese subjects from Australia, Korea and the UK. Percent body fat was measured in about 30% of the sample by DXA or bodpod plethysmography. For the remainder % fat was predicted using the Stewart and Hannan (2000) for males, or Wilmore and Behnke (1970) and Siri (1961) equations for females. Body Mass Index and sum of skinfolds were calculated and entered into the ROC analysis from **MedCalc®** Version 4.16, using the body fat cut-off points of 20% for men and 30% for women to assign overweight status.

Results

Figure 2a and 2b depict ROC curves for male and female samples respectively.

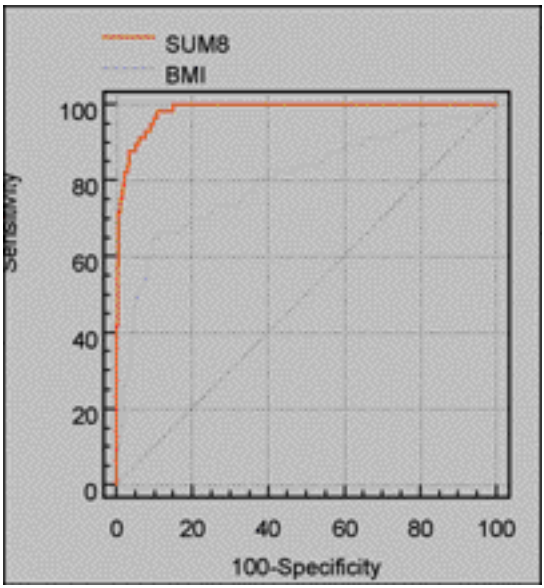

Figure 2a

Male Subjects
+ve group (>20% BF): n = 57
–ve group (<20% BF): n = 530

Area under ∑8 ROC curve:
0.984 (SE = 0.012)
95% CI: 0.970- 0.992
Cut-off >110.8 mm

Area under BMI ROC curve:
0.801(SE = 0.036)
95% CI: 0.766-0.832
Cut-off >26.1kg.m^{-2}

In Figure 2a, the difference between the area under the ROC curves is 0.183 (SE = 0.032), with a 95% confidence interval of 0.121-0.245. This is significant at the $p < 0.0001$ level.

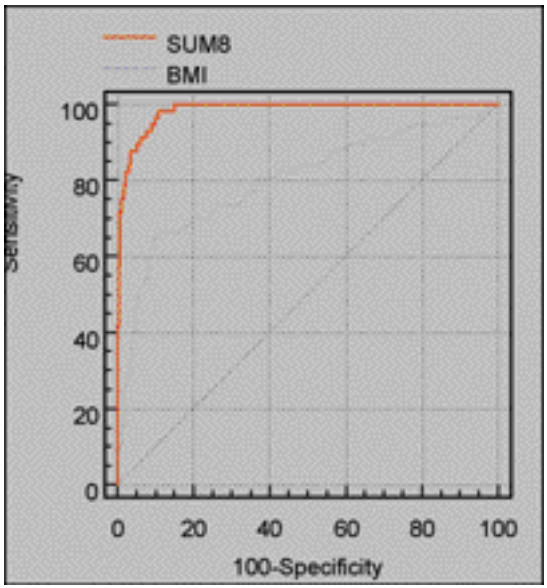

Figure 2b

Female Subjects
+ve group (>30% BF): n =30
–ve group (<30% BF): n = 150

Area under ∑8 ROC curve:
0.964 (SE = 0.024)
95% CI: 0.925-0.986
Cut-off >152.9 mm

Area under BMI ROC curve:
0.848 (SE = 0.046)
95% CI: 0.787-0.897
Cut-off >25.1kg.m^{-2}

In Figure 2b, the difference between area under ROC curves is 0.116 (SE = 0.035), with a 95% confidence interval of 0.048-0.184. This is significant at the $p < 0.001$level.

For both males and females the area under the ∑8 ROC-curve is greater than that under the BMI ROC-curve indicating greater diagnostic accuracy ($p < 0.001$). BMI was marginally better at predicting overweight in females than in males (85% v 80%), probably because muscle mass and frame size accounted for overweight in

more males than females. Put another way, the misclassifications were about 12 times higher in males and 4 times higher in females using BMI than ∑8.

Cut-offs for each of the predictive variables correspond to the value with the best trade-off between false +ves and false –ves. This is the point on the ROC plot that is closest to the top left corner, or nearest to the point representing perfect sensitivity and specificity. These points were 26.1 $kg.m^{-2}$ and 110.3 mm for males; and 25.1 $kg.m^{-2}$ and 152.9 mm for females. Substituting alternative percent fat prediction equations altered the prevalence of overweight, but changed the calculated thresholds by only 0.1 $kg.m^{-2}$ or 1.7 mm. In practical terms these points are the optimal calculated thresholds from this sample for predicting overweight. The proximity of these cut-offs to those of the WHO may be a chance phenomenon which could bolster the argument for their retention, however, the real issue is BMI's potential for misclassification, which can be averted if ∑8 were used instead.

Conclusion

With this illustrative study, we aim to introduce the technique of ROC analysis, and the benefits of its use to test the validity of predictive tests. Whilst certainly not a new topic for this publication , the debate over how useful BMI is as a predictor of obesity is likely to continue. ROC analysis informs such a debate, and these results clearly suggest that ∑8 is better than BMI for predicting overweight. However, quantifying % fat is itself problematic, and ironically the precision of the criterion is poorer than that for stature and mass. Increased use of (ISAK) anthropometric assessment by clinical professionals may improve the accurate diagnosis of overweight or obesity, but they will need persuading the extra accuracy is worth the extra effort and cost. As the Western world wakes up to the obesity epidemic, more research in characterising the phenotype in a standard way is urgently required. At some point in the future, skinfold totals may classify nutritional status – if our calipers are able to open sufficiently widely. But will the WHO "grasp the fold?"

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Anthony Chesters

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Roundtable – The BMI: just how useful is it?
Kinanthreport XII(1), 5-9.

► A BRIEF HISTORY OF SKINFOLD CALIPERS

Some time ago Mike MARFELL-JONES asked me if I knew when the first skinfolds were taken. I thought that Jindrich Matiegka (1921) was the first, but his equipment was "odd" (see below). Further research led me to start recording the first mention of various calipers. Some calipers were used by a few practitioners in subsequent years, but others were used extensively. Here is my review of findings, some of which need to be verified. This may not answer Mike's question, but it might provide a basis for further study. Or, the items might be good trivia questions on an exam!

Stitts (1962) registered 237 titles in an annotated bibliography on skinfolds. Who knows how many more citations since? In the following paragraphs, the name of the caliper is given along with the reference and some notes.

Fingers and thumb

The finger pinch method. From BC to AD to the 2nd millennium. Keys, et al. (1950) noted that "An appropriate estimate of the nutritional state by pinching or picking up a fold of skin is a very old clinical procedure". They noted that Lehmann et al. (1893) studied the thickness of skinfolds by this method in acute starvation. This may be the first published study.

Matiegka sliding compass

Matiegka, J. (1921).

The testing of physical efficiency.

American Journal of Physical Anthropology, 4, 223-230.

The "skin and subcutaneous fat" were measured by "…a sliding compass with blunt points, with the exertion of a mild pressure just to enable the skin fold to slip out of the branches when the fingers don't hold it any longer." Matiegka notes: The sliding

compass adjusted in this way has been manufactured by Brothers Cirek, Prague, Czechoslovak Republic." (p. 225.)

Franzen calipers

Franzen, R. (1929).

Physical measures of growth and nutrition.

American Child Health Association.

Franzen calipers were used in Iowa Child Welfare Studies, mid-1930s, and by Charles H. McCloy at the State University of Iowa from mid-1930s to 1950s. They were also used by Cureton and others at University of Illinois in 1940-50s. Cureton (1951) made the following footnote to Table 10 (p. 52) showing "Adipose Tissue (Franzen units)" comparing 1936 and 1948 U.S. Olympic Swimming Teams. "These measurements in Franzen units may be converted to mm by adding 6 to each of the basic measurements and summing for a new total. Dr. Raymond Franzen's calipers allowed 6 units for the double skin fold and then registered on a curvilinear scale. Since the units were not strictly linear millimetres, they are called Franzen units. After 1941 a new set of calipers was used which allowed no correction for the double skin thickness."

Minnesota calipers

Keys, A., and Brozek, J. (1953).

Physiological Review, 33, 245.

There are some references to a "Minnesota" caliper, but this may have been the forerunner of the "Best" caliper. I am not sure about this one.

Best calipers

Best, W.R. (1954).

An improved caliper for the measurement of skinfold thickness.

Journal of Laboratory and Clinical Medicine, 43, 967-970.

Harpenden calipers

Edwards, D.A.W., et al. (1955).

Design and accuracy of calipers for measuring subcutaneous tissue thickness.

British Journal of Nutrition, 9, 133-143.

Eiken (Japan)

Developed in 1955 by Drs Suzuki and Nagamine with the idea of improving the Harpenden and "Minnesota University" skinfold calipers. This caliper has a "pressure compensator" screw to adjust the pressure to 10 $g.mm^{-2}$ when a 200 g weight with a hook is attached to a hole in the lower caliper arm.

"Adapted" Best

Parizkova, J. (1957).

Cs. Pediat, 12, 310.

This Czech-made adaptation of the Best caliper was used extensively by Parizkova and Stepnicka in studies of children and athletes.

Malachistometro

Correnti, V. (1960).

Il nuevo modello del Malachistometro.

Rend. Accad. Naz. Lincei — VIII, 25, 5.

This may be the finest skinfold caliper ever made. It was beautifully engineered and the pressure could be adjusted to four values: 2.5, 5, 10, and 15 $g.mm^{-2}$. This caliper was used in the study of Olympic athletes in Rome, 1960 (Correnti & Zauli, **Olimpionici**), and in other studies. Unfortunately, only about two dozen were made (Bill ROSS has one.)

Lange

Lange, K.O., & Brozek, J. (1961).

A new model of skinfold caliper.

American Journal of Physical Anthropology, 19, ??.

Una (India)

Rao, D.H., & Sastry, J.G. (1975).

A comparison of skinfold measurement by Harpenden and Una calipers.

Indian Journal of Medical Research, 64(4), 619-622.

From the drawing, this caliper looks exactly like the Best caliper.

Holtain

This caliper was designed to compete with the Harpenden caliper, but is marketed with the Holtain equipment line. First models in 1980s – ?

SlimGuide

About 1976. A widely used robust plastic caliper that gives results similar to the Harpenden. Creative Health Products, Plymouth, Michigan; 1981, Rosscraft, Surrey, BC, Canada.

Lafayette

About 1980-1. Lafayette Instrument Company, Lafayette, Indiana.

Skindex

About 1981. Human Performance Systems, Fayetteville, Arkansas.

T.E.C.

About 1990? “This is a copy of the Lange made in Korea. … it looks identical to the Lange on the outside, it is different internally and is very difficult and sometimes

impossible to repair. This caliper is also branded with other names such as "Baseline." (Creative Health Products Skinfold Caliper Buyer's Guide. No date.)

Gaucho Pro

2002-3. The Gaucho-Pro skinfold caliper was designed and built by Francis HOLWAY and Diego RIBIERI (ARG). It is an affordable skinfold caliper (analogous to the SlimGuide) which measures like a Harpenden caliper. It has the same area of contact (80 mm^2), longer pivot-to-contact branches distance (more like the Harpenden and less like the SlimGuide), and springs placed at an angle to compensate for Hooke's Law (same as Harpenden and different from Slim Guide) so as to apply constant pressure throughout its 90 mm opening. The Gaucho-Pro is made of solid plastic with a mm scale (Rosscraft, SRL, ARG).

Plastic models

There are a number of cheap plastic skinfold calipers, probably several in some countries, that are poor imitations of calibrated models. They cannot easily be calibrated and are easily broken. Examples: Fat Control Caliper, (1977); Fat-O-Meter; Adipometer; all made in USA.

Direct depth

Martin et al. (1992).

> Effects of skin thickness and skinfold compressibility on skinfold thickness measurement.
>
> **American Journal of Human Biology, 4,** 453-460.

Depth of incision into adipose tissue was measured with a steel mm ruler. (I am not sure if this qualifies as a caliper, but it is a direct measure of uncompressed adipose tissue!). Not popular with live subjects.

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Physical fitness of champion athletes.
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Additions and corrections to this document are welcome. Please contact

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► ISAK EXECUTIVE COUNCIL ELECTIONS 2004

Preliminary Announcement

As Past President of ISAK it is my task to oversee biennial elections to the ISAK Executive Committee. The election will take place within the next few months with the final candidates subject to approval by the present Executive Council at the Biennial General Meeting of ISAK in Thessaloniki, Greece, August, 2004.

The current ISAK Executive Council

President:	Mike MARFELL-JONES* (NZL)	
Vice President:	Thomas REILLY* (GBR)	
Secretary-General:	Hans DE RIDDER (SAF)	
Past President:	Lindsay CARTER (USA)	
Council:	Isabel FRAGOSO* (POR)	Paulo GOMES* (BRA)
	Betty PEREZ (VEN)	Deborah KERR (AUS)
	Arthur STEWART (GBR)	

* The four-year terms of Mike MARFELL-JONES, Thomas REILLY, Isabel FRAGOSO and Paulo GOMES expire in August 2004. Isabel FRAGOSO, Paulo GOMES and Mike MARFELL-JONES have said that they will be candidates for a second term. A second term is not automatic. The candidates must be nominated by two members for a second four-year term. Other candidates may also be nominated for the same positions and a ballot will be held to determine the candidate with the most votes. Tom REILLY says he will not run for another term, therefore the Vice President position must be filled.

Nominations

A call for nominations will be mailed to all current ISAK members in March or April. The likely positions on the nomination form will be for President, Vice

President, and two Council members. If you wish to nominate an ISAK member for one of the positions on the Council, you must obtain their permission plus the support of one other ISAK member, and return the nomination form to the Past President by the date given on the form.

Final ballot

If there is more than one nominee for any position, a runoff ballot will be conducted in June, 2004. The runoff ballot will be mailed to ISAK members in May or June so that the results will be known by 30 June, 2004.


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► COMING CONFERENCES

Title

2004 Pre-Olympic Conference

Venue and date

Thessaloniki, Greece, 6-11 August, 2004

Information

Symvoli – Congress Organisers Ltd.
8 Patmou Str., GR-551 33 Thessaloniki
GREECE
☎ +302 310 425 159
fax: +302 310 425 169
✉ **preolympic2004@symvoli.com.gr**
http://www.preolympic2004.com

Theme

Sport Science Through the Ages: Challenges in the New Millennium

Thematic Areas include physiology, medicine and rehabilitation, biomechanics, nutrition and biochemistry, psychology, history and philosophy, coaching and performance, health and fitness, sociology, pedagogy, PE, dance, research methodology and new technologies.

Title

7th Australasian Conference of Mathematics and Computers in Sport

Venue and date

Palmerston North, New Zealand, 30 Aug-1 Sep 2004

Information

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Title

Australian Conference of Science and Medicine in Sport

Venue and date

Alice Springs Convention Centre, Australia, 7-9 October 2004

Themes

- acute and chronic responses to exercise in the heat
- sports medicine in rural and remote locations
- physical activity and bone and joint health
- exercise and genes
- sports injury: what do we know, and what can we do?
- physical activity and chronic disease

Critical date

19 Mar 2004 Abstracts due

Keynote speakers

Professor Bruce Abernethy | How do they make it look so easy?

Dr Peter Brukner | Does playing sport inevitably lead to arthritis?

Professor Mark Hargreaves | Exercise, diet and skeletal muscle gene expression.

Information

http://www.sma.org.au/acsms/2004/

► CONGRATULATIONS

To Francisco HOLWAY

on the birth of Mateo Holway, on 20 September 2003. He had his first anthropometric profile about 15 minutes after his birth:

mass = 3.082 kg
length = 48.5 cm
head girth = 33.5 cm

To Hans de RIDDER

on his promotion to Professor at the University of Potchefstroom, November 2003.

► ISAK OFFICE-BEARERS

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► REVISED ISAK MEMBERSHIP FORM

ISAK has revised its membership form. Level 3 course co-ordinators should download the new form (Word or PDF format) by clicking below:

click here to download the form in WORD format
click here to download the form in PDF format

or by contacting

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► ISAK MANUAL

The revised ISAK site location and measurement guidelines are are now available as a booklet, *International Standards for Anthropometric Assessment.* There have been few major changes from existing guidelines, but a number of points have been clarified. In addition, the new booklet contains information on equipment suppliers, and high-quality images for site location.

The booklet may be ordered at $US12 per copy plus postage (ISAK members) or $US18 per copy (non-members) from

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A number of ISAK members have noticed small errata in the manual. We are keen to correct these in the next edition. Please forward any comments to

✉ **tim.olds@unisa.edu.au**

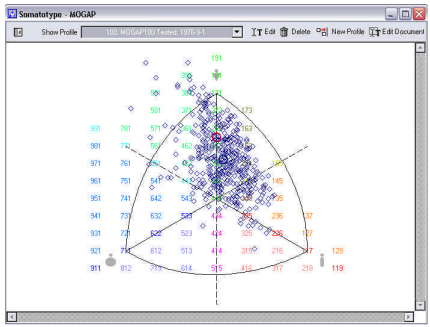
► COMPOSICIÓN CORPORAL

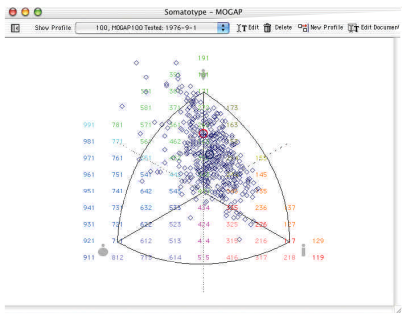
a Mónica Sofía Cervantes Borunda

Quiero convertirme en cinta
flexible y de metal,
en ramas cortas y largas
de corredizo compás
y en plicómetro de plástico
de la línea de Rosscraft;
y siguiendo, paso a paso,
todo el manual de la ISAK
acariciar tu epidermis
de textura angelical
y obtener sin ecuaciones
y por método especial
tu exquisita, fina y regia
composición corporal.

Fernando Bautista BUENFIL (candidates at the ISAK course in Chihuahua)
Chihuahua a 6 de junio de 2003.

Somatotype — Calculation and Analysis





Use **Somatotype** to

► Calculate individual or group somatotypes

► Import somatotype data from, and export to, other files

► Create reports that show statistics, somatoplots, categories, and comparisons of individuals and/or groups

Somatotype is available for:

► Windows (95, 98, ME, NT, 2000, XP)

► MacOS Classic 8.x to 9.x and

► MacOS X 10.x

"Somatotype – Calculation and Analysis is a comprehensive, user-friendly program that has excellent input-output, calculation, analysis and display features, making it the program of choice for anyone doing somatotype calculations and analysis."
Lindsay CARTER

Download a free trial version from
http://www.sweattechnologies.com/somatotype

sweat technologies

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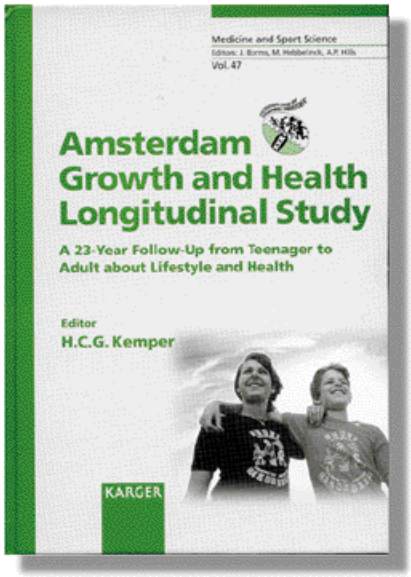
► BOOK REVIEW: AGAHLS

H.C.G. Kemper (ed.) (2004).

Amsterdam Growth and Health Longitudinal Study: A 23-year follow-up from teenager to adult about lifestyle and health.

Medicine and Sports Science (vol. 47). Basel: Karger.



In 1995, there were 215 extant longitudinal surveys in Europe involving at least 30 people over at least 3 years, and many more around the world. Some of the larger of these studies are well known: Young Finns, CHIC, Leuven, Muscatine, Québec ... these are names which we all recall from innumerable papers and presentations. One of the earliest and best known of all is the Amsterdam Growth and Health Longitudinal Study. The survey started in 1976, and has now run for 23 years. It has

generated more than 200 papers and 10 PhDs. Starting with 600 early secondary children, it has retained 450 of the original subjects — a very impressive retention rate.

This volume summarises the early findings of the third cycle of the study (2000-2004) and marks the retirement of the man responsible for setting up and driving the project: Professor Han Kemper. The information provided regarding the history of the study is invaluable for researchers thinking of setting up their own longitudinal studies, and there are two excellent chapters on statistical analysis, one relating to the appropriate use of MANOVA, General Estimating Equations and Random Coefficient Analysis, and the other outlining a very neat model for quantifying stability coefficients and error.

Some of the other chapters deal with

- the Barker hypothesis that low birth weight is associated with the development of the metabolic syndrome in adult life (some support for the hypothesis, the relationship perhaps being mediated by fat-free mass);
- the longitudinal and cross-sectional relationships between fitness and fatness, and large artery properties (low fitness and high central adiposity are associated with reduced arterial health);
- smoking, alcohol and coffee consumption and cardiovascular risk factors (smoking is bad, alcohol is good, coffee has little effect);
- personality as a determinant of lifestyle (no clear relationships);
- energy balance (physical activity has stronger associations with present and future fatness than food intake; and
- the relationship between physical activity and VO_{2max} (surprisingly weak).

On the whole, this is a very useful volume, which addresses many of the “hot button” issues in pediatric exercise science using well-designed studies. Unfortunately,

in many cases the answers are not as unambiguous as we would have hoped. Consider the longitudinal relationship between daily physical activity and VO_{2max}. We would expect these relationships to be positive and strong. They are indeed positive and highly significant (in view of the large sample size). But with standardised regression coefficients of 0.07-0.10, they are actually rather weak. Consider, too, the effect of health information in youth on adult biological and lifestyle risk factors (AGAHLS could calculate these because it used a "control" group measured only at 13 and 32 years, as well as a regular "intervention" group which was measured seven times, and received comprehensive feedback). The "intervention" group fared marginally better in the subscapular: triceps skinfold ratio, and in changes in systolic blood pressure (but only in men). There were no differences in lipid profiles, sum of 4 skinfolds, ærobic power or dastolic blolod pressure

The volume is unfortunately marred by many errors of grammar, punctuation and expression. The use of a professional native English speaker copy editor would have remedied this.

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